REMARKS

Claims 1-24 and 26-55 were rejected by the Patent Office under 35 USC § 102 as having been "described in a patent granted . . . before the invention thereof by the applicant for the patent." Re-examination and reconsideration of the application, in view of the following remarks, are requested.

Anticipation under 35 USC § 102 requires that a single piece of prior art shows each and every element of a patent claim. [Manual of Patent Examining Procedure §706.2 at p 700-23]. "**The identical invention must be shown in as complete detail as is contained in the ... claim.**" *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The McNitt, et. al. patent (US 6,567,536), hereafter "McNitt", as cited by the Patent Examiner, does not anticipate the claims of Application 10/815,237 because Application 10/815,237 contains claims and limitations that are not present in the cited prior art. Applicant respectfully traverses this rejection for at least the following reasons.

Applicant responds to Examiner's Response to Amendment Paragraph 1, Pages 2-5 as follows:

With respect, Examiner's response contains unmatched parentheses making it difficult to parse Examiner's argument.

All references contained herein shall be to the McNitt Patent number 6,567,536, which is the basis of Examiner's rejection under 35 USC § 102, unless otherwise cited.

Examiner argues that column 15, lines []8 – 20 discloses 1) defining a standard motion and 2) comparing the motion under analysis to a standard motion. First, Applicant must clarify the meaning of "standard motion." The word "standard" is not used in the sense of a "typical" motion. Rather, it is used as meaning that which is established as the model for the motion under analysis. (see Merriam Webster Dictionary). Applicant has amended the relevant claims to more accurately convey this meaning by substituting the word "benchmark" for "standard". The benchmark motion is

the defined motion that will result in a successful completion of the motion under analysis. As set forth in claims 19 through 21, there are several methods of determining the benchmark motion. McNitt does not disclose the process of defining any benchmark motion nor the comparison of the motion under analysis to the benchmark motion.

In Examiner's cited reference, McNitt is describing the composite display of video and data in what McNitt calls alternately a "user interface" or the "analysis system" (see column 12, line 44 to column 14, line 35). He discloses that the positional measurement values can be displayed as the video display shows the golfer conducting his swing (column 15, lines 1-3). In what Examiner contends equates to a standard motion, McNitt states, "positional elements of the swing may be compared to a table or database of values . . . wherein the database contains average values based on predetermined desirable swing mechanics" (column 15, lines 8 – 13). Finally, McNitt provides examples of color-coding the positional measurement display based on whether the data falls within a "desirable range" around the "average value[]" (column 15, lines 13-20). In essence, Examiner argues that a desirable range around average values for positional measurements equals a defined standard or benchmark motion. It does not and can not.

By definition, an average cannot define a set of data. The average is a measure of central tendency—the midpoint of a set of data. Below are two sets of number with the same arithmetic mean (average):

{15, 20, 43, 110, 237}

{4, 51, 71, 132, 167}

They are not the same and the fact that their average (85) is the same cannot make them so. Several motion analysis examples leap to mind. A high jumper attempting to leap a six-foot bar cannot be said to be successful if, on average, his body cleared 6 feet. Every part must have cleared 6 feet (a minimum bound). A placekicker in American football must impart a certain trajectory to the football to clear the defensive line. A pitcher attempting to strike out a batter cannot be said to have done so if, on average, three pitches pass though the strike zone (a three dimensional right angle pentagonal)

without being hit. All three pitches must, in fact, have passed through the strike zone without being hit. A pitch down the middle does not make up for a pitch in the dirt. Likewise, a table of average values for positional measurements (column 15, lines 12-13) cannot define a motion let alone a standard or benchmark motion. Adding a range around those average values, as McNitt does (column 15, lines 15 and 20), makes them even less meaningful in defining a standard or benchmark motion.

There is a complicated interaction between the various elements of a motion being studied. A baseball batter attempting to hit a fastball can make up for a late rotation of the hips with a strong upper body. The fact that the batter hit the ball does not mean that he made an ideal swing. The Applicant's system is designed to identify that ideal (benchmark), measure the relevant mechanics of the swing, determine whether the actor met the benchmark, and make or suggest adjustments to the motion so as to duplicate the benchmark motion. Applicant's system is individualized for each actor through the setting of that benchmark and the comparison against that benchmark.

Comparison of an individual positional measurement (e.g., shoulder turn) against a range around an average value is not the same as comparison of a complete motion under analysis or a reconstructed motion to an ideal or benchmark motion. Take again the example of a baseball batter. The benchmark motion must be individualized based on the batter's height, weight, and arm speed and the bat selected. The benchmark for each batter/bat combination might include:

- the timing and length of the forward stride;
- the moment and degree of hip rotation;
- the timing and degree of shoulder rotation;
- the extension of the arms;
- the position and rotation of the wrists over time; and
- the bat speed and location at the moment of impact with a baseball.

The interaction of these elements would be modeled in the benchmark. For example, if the forward stride was "late", the timing of the hip rotation and shoulder rotation would

need to be different than if it were "early." The McNitt patent makes no provision for modeling any benchmark, let alone modeling alternate benchmarks based on the interaction of the measured motion to the ideal.

The benchmark could be, for example, set as the combination of those measurements that result in the lowest total expenditure of energy for the greatest resulting distance to the struck ball (a point of convergence on a graph of distance / expended energy). Or, alternately, it could be set as the combination of motions that result in the greatest bat speed at impact without regard to the expenditure of energy to produce that result.

Once the benchmark motion is set, the result of the swing can be modeled—e.g., the baseball will exit the bat at a speed of 110 miles per hour at an elevation of 30 degrees and will travel 400 feet toward direct center field. (see, e.g., www.hittrackeronline.com). As discussed above, a batter can overcome opening his hips late by applying greater upper body strength to get the bat speed to the same value.

Under the McNitt description, the system would 1) accept a range of values around an average for any of the measured motions (e.g., hip rotation) and 2) would show the results of individual measurements rather than the achievement of the desired benchmark (column 15, lines 5-20). If the benchmark was set as the set of actions that result in the lowest expenditure of energy for the greatest resulting distance, the McNitt system would be unable to determine if the benchmark was met. If it was set as the greatest possible bat speed, the McNitt system would also be unable to determine if the benchmark was met due to false negatives.

As an example, there was an atypical baseball player in the late 1980's by the name of Kirby Puckett. Mr. Puckett was a prodigious hitter packed into a very compact frame. His 207 career home runs were the result of tremendous upper body strength that overcame his physical limitations when it came to flexibility. The McNitt system would likely indicate that Mr. Puckett did not rotate his hips to the preferred angle and rotated his shoulders beyond the preferred angle. Mr. Puckett was physically unable to open his hips as would be typical in a power hitter. Mr. Puckett combined those two "wrongs" in terms of swing mechanics to develop a swing that resulted in a Hall of Fame career.

Applicant's system is specifically designed to accommodate the individual kinematics of the actor being studied by setting the standard or benchmark motion as the ideal for that individual (see claim 20). The measured mechanics are then compared *in toto* against the ideal. The ideal or benchmark might contain minimum bounds, maximum bounds, logical statements (if/then), trigonometric functions, or any other mathematical formula necessary to model the successful completion of the action as a whole. The McNitt system **does not** disclose a process by which a standard or benchmark motion is defined, the relevant mechanics of the motion are measured, and the motion under analysis is compared to the benchmark motion.

The reference cited by Examiner to column 6, lines 23-37 does not disclose defining a standard or benchmark motion nor does it disclose the comparison of the motion under analysis to a standard or benchmark motion. The cited reference refers to the **synchronization** process of the McNitt patent. McNitt describes alternate methods of synchronizing signals. The purpose of this synchronization is to "ensure that portions [] of one signal relate to portions [] of the other signal (lines 18-20)." This is done through associated time information (line 20). McNitt then describes how that time information might be applied to the signals. In his first example, each signal is time-stamped with the same time stamp (lines 25-29) and therefore each portion is identified with the same time stamp (lines 28-29). An example of this embodiment would be a running clock with each signal identified by the corresponding time from that running clock. In his alternate embodiment, the signals are not time stamped with a common stamp, but rather are stamped independently (line 30). Because the signals do not contain a common time stamp, they must be associated by the synchronization module (line31). An example of this embodiment would be utilizing a running clock on signal 1 and a relative clock on signal 2. So, for example, the video stream would be time-stamped using an internal running clock and the swing data would be time-stamped relative to the point of impact (e.g., at impact versus 15 milliseconds before impact). The synchronization module would associate the moment of impact time stamp on signal 2 with the running clock time stamp on signal 1 by comparing when the moment of impact was recorded on signal 2 relative to the time stamp on the video stream. Column 6 relates solely to the need and

method of associating time signals so that the data is synchronized. It **does not** disclose the comparison of a motion under analysis to a standard or benchmark motion.

Examiner's highlighting of the word "**compared**" on page 3 of the Response dated November 14, 2007 refers to a portion of the McNitt patent wherein he states that the "second signal is a different type of signal as **compared** (emphasis added by Examiner) to the first signal." McNitt is merely reiterating that the two signals are different (e.g., the first signal is video data and the second signal is positional data (see column 4, lines 15-17)). It **does not** reference the comparison of a motion under analysis to a standard or benchmark motion.

Without admitting or accepting Examiner's arguments, Applicant has withdrawn claim 2. To the extent that Examiner relies on the same cited references in rejecting claims other than claim 2, Applicant responds as follows:

> Examiner's reference on page 3 of the Response to column 17, lines 46-51, to refute Applicant's prior argument regarding claim 2 is traversed. The cited reference **makes no reference whatsoever** to a comparison of any nature nor to defining a standard or benchmark motion. The paragraph that contains the cited reference sets forth the type of information that might be gathered by the system (positional, video, impact) (see column 17, lines 39-45). The cited reference at lines 46-48 reiterates that the first and second information signals might be of the type of information mentioned in lines 39-45 (positional, video, or impact). The cited reference then both expands and limits the type of sensed information by stating, "the sensed information might be any form of information related to a stroke, swing, movement or motion of a person performing physical acts." The entire paragraph is focused on the type of information that might be received by the sensors. It makes **no reference** to defining a standard or benchmark motion, measuring the relevant mechanics of the motion, or comparing the motion under analysis to the benchmark motion.

Examiner's insertion of the parenthetical "(refer to defined signal)" is a non-sequitur. The cited reference does relate to the type of information that might be carried by the signals. The cited reference doesn't even refer to defining the signals. There is no logical connection between a list of types of information that might be carried by signals and defining a standard or benchmark motion or to comparing the motion under analysis to that defined standard or benchmark motion.

Examiner's citation to column 16, lines 48-63 in refutation of claim 2 is specious. Examiner has already accepted Applicant's arguments in favor of granting claim 5 despite the same cited reference (see Reply to Office Action dated 4/23/2007 at page 11). The cited paragraph sets forth the process of receiving information. It lists the type of information that might be received by the first signal (column 16, lines 51-52). It then states that the second signal "represent[s] sensed information relative to the golf club swing." (column 16, lines 53-54). It further clarifies that the "second information signal is a different type of signal as **compared** (emphasis added by Examiner) to the first signal." (column 16, lines 55-56). The very next sentence clarifies the emphasized reference, setting forth an example wherein the first signal is video information and the second signal is "positional, weight transfer, or impact information." (column 16, lines 56-68). Finally, it concludes by stating that the information can be received either simultaneously or substantially simultaneously. (column 16, lines 58-63).

The emphasized portion of the cited reference merely states that the two signals received by the receive operation are different types of signals. Nowhere within the cited reference does it reference defining a standard or benchmark motion, measuring the relevant mechanics of the motion, or comparing the motion under analysis to the benchmark motion.

The reference by Examiner to column 13, lines 1-49 in response to Applicant's argument in favor of claim 3 does not disclose "the adjustment of the action in

relationship to the a comparison of the action to a defined standard." As argued throughout this and the previous response, the McNitt patent does not disclose 1) defining a standard or benchmark motion or 2) comparing the motion under analysis to the defined standard or benchmark. Therefore, it cannot disclose "the adjustment of the action in relationship to the a comparison of the action to a defined standard (benchmark)."

Further, the cited reference does not disclose the process of making adjustments. The cited reference relates to the display of video analysis information (see column 12, lines 62-63). More specifically, it refers to Figure 7, a screen shot of the information displayed by the analysis module (column 12, lines 47-49). The cited reference sets forth an alternate embodiment wherein the split screen display shows analysis information from two separate golfers (column 12, line 65 – column 13, line 1). Taking the example set forth in the cited reference—a student golfer receiving swing training and a professional golfer—the system makes no mention of the method by which the **system** is involved in the process of adjusting the swing. All the **system** does is provide a display that allows the student to "compare and contrast" his swing to that of the professional golfer (column 13, lines 2-3 and 5-6).

The system, as set forth by McNitt in the cited reference, does not indicate which, if any, of the differences are meaningful. The system does not identify what is to be adjusted (the implement, the actor, what portion of the action, etc.). It does not indicated how it is to be adjusted. It does not indicate when it is to be adjusted. It does not indicate the scale of the adjustment, nor the scope of the adjustment. As set forth in the McNitt patent, the system merely displays synchronized swings and data and then allows the user to "compare and contrast." Applicant's claim is fundamentally different in that the comparison of the reconstructed motion to a defined standard or benchmark, as set forth above, allows the system itself to set forth the required adjustments based on the established benchmark—what needs to be adjusted, when it needs to be adjusted, how much it needs to be adjusted, etc. The display of synchronized video for the purpose of comparing and contrasting two actors is not the same as a system that identifies and communicates what, how, and when to adjust an action to conform to a defined benchmark or that makes the adjustments (e.g., electromechanical devices).

McNitt does not make any reference to the result of the action under analysis and therefore cannot make reference to the logging of an intended result. The reference cited by Examiner (column 20, lines 17-25) refers to the storing of the data from a session for further review by the student. In other words, the reference is about storing "positional measurement samples . . . as part of an archived lesson" (column 20, lines 21-25). The storing of data can be considered "logging". However, no reference is made to an intended result. As set forth in Applicant's previous response, the action being studied ought to change based on what the actor intends to accomplish. Without knowing what is intended, the system cannot determine if the result was as intended. It can only report what happened not whether what happened is what was intended to happen.

Likewise, Examiner's reference to column 22, lines 35-44 indicates the process by which information is marked for storage and retrieval through a World Wide Web based application (column 21, line 65 – column 22, line 44). Specifically, it refers to Figure 10, which is a flowchart showing the process of marking, uploading and accessing information via the World Wide Web (see Fig. 10). It does not reference the process of determining what result is intended and of logging that intended result for use in comparison between the action being studied and the defined standard or benchmark motion. Using the example of a golf swing from the McNitt patent, striking the ball in a straight line typically requires the path of the club head be in a straight line to the target. However, if the intended result is a draw (a shot that starts right and curves left), the player sets up in a stance to the right of his or her target and the club head moves across the stance to impart side spin, causing the draw. Without knowing that the player intended to draw the ball, the player's motion would be deemed incorrect. The McNitt patent makes no accommodation for changing the analysis based on an intended result. The cited reference merely indicates that all sorts of information may be marked for uploading and future retrieval via the World Wide Web.

Applicant further responds to Examiner's Response to Amendment, Paragraph 3, Pages 5 - 11 as follows:

Examiner does not cite new grounds for rejecting Claims 1-24 and 26 –55. Examiner has stated, "Applicant's amendment filed, 8/20/2007, see page 9 through page

24 of remark . . . have been fully considered and are persuasive. Therefore, the rejection has been withdrawn." As no new grounds for rejection have been incorporated into Paragraph 3, and Examiner has withdrawn his rejection of the aforementioned claims based on Applicant's amendment filed 8/20/2007, Examiner is estopped from rejecting Claims 1-24 and 26-55 upon the grounds cited.

Allowable Subject Matter

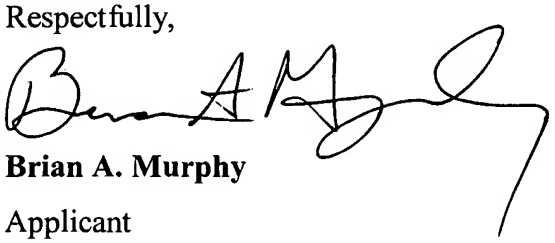
Applicant responds to Paragraph 4 as follows:

To the extent that Applicant's argument in favor of the granting of Claim 1 is persuasive, Claim 25 survives.

Further, irrespective of the favorable resolution of claim 1, Claim 25 has been amended to constitute an independently allowable claim.

In light of the above remarks, Applicant believes that the claims are in condition for allowance and respectfully requests favorable reconsideration of the claims as contained herein.

Respectfully,



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